

IN THE SPECIFICATION:

Please amend the paragraph beginning at page 4, line 16, as follows.

Another problem with the prior art is that only one static fingerprint or  
 5 palm-print image is grabbed during acquisition of the biometrics ~~biometres~~ signal. This  
 instant image may be a distorted depiction of the ridges and valley structure on the finger  
 or palm because the user exerts force, torque and/or pressure with the finger with respect  
 to the image acquisition device (fingerprint or palm-print reader). A problem is that,  
 without grabbing more than one image or modifying the mechanics of the sensor, it  
 10 cannot be detected whether the image is acquired without distortion. An additional  
 problem with the prior art of grabbing a static fingerprint image and representing a static  
 fingerprint image is that there is only one choice for the image that can be used for person  
 authentication and that image may not be the best depiction of the ridge-valley structure.

15 Please amend the paragraph beginning at page 12, line 11, as follows.

Figure 4 is a generic block diagram for combining a biometrics with user  
 action, i.e., combining biometrics at the subject level. The user action, just like the  
 movement of a pen to produce a signature, is the second behavioral biometrics. The user  
 410 offers a traditional biometric 420 for authentication or identification purposes. Such a  
 20 biometrics could be a fingerprint, iris or face. However, rather than holding the  
 biometrics still, as in the case of fingerprints or faces, or keeping the eyes open, as in case  
 of iris recognition, the user performs some specific action 430,  $a(t)$  with the biometrics.  
 This action is performed over time 432, from time 0 (434) to some time  $T$  (436). Hence,  
 the action  $a(t)$  is some one-dimensional function of time 430 and acts upon the traditional  
 25 biometric 420. Note that this biometric is the actual biometric of user 410 and not a  
 biometrics signal (i.e., in the case of fingerprints, it is the three-dimensional finger with  
 the print on it). It is specified what the constraints of the action 430 are but within these  
 constraints, the user 410 can define the action. (For example, constraints for putting a  
 signature are that the user can move the pen over the paper in the x- and y-direction but  
 30 cannot move the pen in the z-direction.) That is, the action 430 in some sense transforms  
 the biometric of the user over time. It is this transformed biometric 450 that is input to the

biometric signal recording device 460. The output 470 of this device is a sequence of individually transformed biometrics signals  $B(t)$  480 from time 0 (434) to some time  $T$  (436). In the case of fingerprints, these are fingerprint images, in the case of face, these are face images. This output sequence 470, is the input 485 to some extraction algorithm 490. The extraction algorithm computes from the sequence of transformed biometrics the pair  $(a'(t), B)$ , 495, which is itself a biometric. The function  $a'(t)$  is some behavioral way of transforming biometric  $B$  over a time interval  $[0, T]$  and is related to the function  $a(t)$  which ~~wieh~~ is chosen by the user (very much like a user would select a signature). The biometrics  $B$  can be computed from the pair  $(a'(t), B)$ , that is, where  $a(t)$  430 is zero, where there is no action of the user, the output 470 is undistorted copy of biometrics 420. In general, it can be computed where in the signal 480, the biometrics 420 is not distorted.